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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/451,472	11/30/1999	BRIAN R. WIESE	AMATP019D1	9113

23494 7590 12/26/2001

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EXAMINER

TSE, YOUNG TOI

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 12/26/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/451,472

Applicant(s)

Wiese et al.

Examiner

Young Tse

Art Unit

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) ☒ Responsive to communication(s) filed on Apr 17, 2001 and Dec 11, 2001

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

## Disposition of Claims

4) ☒ Claim(s) 46-53 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 46, 47, 49, and 51-53 is/are rejected.

7) ☒ Claim(s) 48 and 50 is/are objected to.

8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirements.

## Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some\* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2

20) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's election without traverse of claims 46-53 in Paper No. 5 is acknowledged.

### ***Specification***

2. The disclosure is objected to because of the following informalities: at page 1, line 5, Applicants are requested to update the Serial No. 08/834,503, now U.S. Patent No. 6,014,412. Appropriate correction is required.

### ***Claim Objections***

3. Claims 46-52 are objected to because of the following informalities: in claim 46, line 6, the word "modulator" should be changed to --demodulator--; wherein the dependent claims 47-52 are depending on claim 46. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 46-47 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Nohara et al..

Nohara et al. (U.S. Patent No. 5,430,894) discloses a receiver circuit in Fig. 3 having a noise suppression apparatus for selectively receiving a radio wave signal and transforming the radio wave signal into an electric signal. Fig. 4 is a circuit diagram for a digital signal processing in the noise suppression apparatus of Fig. 3. Fig. 8 is a signal flowchart showing the operation of the noise suppression apparatus of Fig. 3.

Referring to Fig. 4, the receiver circuit includes two A/D converters (41), one for receiving an audio input signal and another one for receiving a field strength input signal, both converters are connected to a digital signal processor.

The digital signal processor includes a FHT transformer (42) for transforming the sampled audio input signals or digital time domain signals into digital frequency domain data; a noise data generating circuit (6) for generating noise window levels; a noise canceller circuit (4) for canceling the effect of RF interference on the digital frequency domain by modeling (noise patterns) the RF interference; and the output of the noise canceller circuit is input to an IFHT. Fig. 5 shows three noise patterns.

With respect to claim 46 and 47, the A/D converter (41) is equivalent to the A/D converter; the FHT (42) is equivalent to the multicarrier demodulator; and the noise canceller (4) is equivalent to the digital RF interference canceller. Also see method claim 53.

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*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 49 and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al. in view of Chow et al..

Nohara et al. fails to show or teach that a cyclic prefix removal and windowing processor is connected between the A/D converter and the FHT as recited in claims 49 and 52 and an analog canceller is used prior the A/D converter as recited in claim 51.

Chow et al. (U.S. Patent No. 5,285,474) discloses a system in Fig. 2© for optimizing a set of equalizer parameters of an equalizer to be used to equalize a multicarrier data signal that has been transmitted through a distorting channel. Referring to Fig. 2(c), the receiver part of the

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system includes a LPF filter and ADC converter; a pre-equalizer, a cyclic prefix, a FFT, a FEQ, and a decoder. Clearly, the LPF filter is connected prior to the ADC converter for reducing or canceling the noise or interference signal from the distorting channel before converting the received signal to the receiver part. Further, the pre-equalizer and the cyclic prefix are connected between the ADC and the FFT to judge the distorted transient response of the channel lasts for less than  $L$  sample periods, then the signal symbol length can be increased from  $N$  to  $N+L$  samples by inserting  $L$  extra sample. See col. 2, lines 57-62.

Therefore, it would have been obvious to one of ordinary skill in the art to use a cyclic prefix removal and windowing circuit in Nohara's receiver circuit between the A/D converter and the FHT as taught by Chow in order to increase the symbol length of the time domain produced by the A/D converter before reach the FHT.

#### ***Allowable Subject Matter***

8. Claims 48 and 50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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References Ho et al., Cantwell et al., Cioffi, Souissi et al., Chow et al., and Kane et al. are made of record as describing a related receiver circuit having an A/D converter for generating digital time domain signals; a FFT circuit for converting the digital time domain into digital frequency domain data; and a canceller circuit for canceling the effect of RF interference of the frequency domain data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Young Tse** whose telephone number is **(703) 305-4736**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

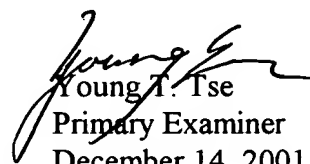
**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
Young T. Tse  
Primary Examiner  
December 14, 2001